

DAKOTA COUNTY RECYCLING EVALUATION

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The mission of the Dakota County Office of Planning, Evaluation, and Development is to help our partners achieve County goals by providing information, analysis, and assistance in setting direction, framing policy discussions, and measuring progress.

EXECUTIVE SUMMARY

PROBLEM STATEMENT

A *principal service/program activity* of the Environmental Management Department in Dakota County is to ensure that *solid waste generated in the County is recycled*. Based upon hauler reports and inventories from drop-off sites, *results are measured* in terms of *the percentage of the total municipal solid waste stream that is recycled* and the *total tonnage of waste recycled* (*Dakota County Environmental Management Outcome Measurement Plan*, 1998). The benefits of recycling include natural resource conservation, solid waste reduction, environmental protection, energy conservation, and social and economic development.

Due to both the leveling of recycling rates and diminishing landfill capacity in Dakota County, reassessment of the current recycling program in the County and complementary efforts to encourage residential, commercial, institutional, and in-house recycling is timely. State legislation set a goal for metropolitan area counties to recycle at least 50% of total municipal solid waste generated by weight. Regionally, the metropolitan area's recycling rate peaked in 1994 and 1995, and despite a slight improvement in the recycling rate in 2000, the region as a whole has continued to fall short of the mandated recycling rate of 50% from 1997 to the present.

Although Dakota County reached the 50% goal and was slightly exceeding the performance of the region as a whole by 1996, the recycling rate has remained relatively steady between 48% and 50% since 1997. Given that the rate of waste generation has plateaued in recent years, the apparent leveling in the recycling rate implies that new opportunities may exist to improve the effectiveness of recycling in Dakota County. The County's recycling initiatives have been successful in reaching and generally maintaining the legislative goal for recycling among metropolitan area counties, and the total tonnage of material recycled has increased. However, the evident plateau in recycling rates and tonnage of materials collected per person -- coupled with diminished landfill capacity, continued County growth, restrictions in directing waste streams, and industry changes -- give rise to the following *evaluation questions*:

- 1. How effective is Dakota County in providing that solid waste generated in Dakota County is recycled? What opportunities exist to increase the recycling of waste generated in Dakota County, and what issues should be considered in weighing alternatives?**
- 2. How might the County significantly influence and improve recycling in the following sectors?**
 - Residential
 - Commercial
 - Institutional
 - In-house

The Recycling Evaluation addresses these questions and identifies recommendations for continued improvement of residential, commercial, institutional, and in-house recycling in Dakota County.

BACKGROUND

State legislation adopted in 1989 set a goal for metropolitan area counties to *recycle at least 50% of the total tonnage of municipal solid waste (MSW) generated*, to be achieved every year from 1996 through 2003. Dakota County's implementation strategy for recycling was initiated in 1988, at which time the County was deeply involved in developing the program. In 1990, Dakota County recycled approximately

19% of all waste generated and was achieving less than the region's average recycling rate of 30%. In 1990, some 0.18 tons of municipal solid waste were recycled per capita. By the following year, the per capita volume had more than doubled to 0.40 tons of MSW recycled per person. From 1991 to the present, the tonnage of recyclables has ranged between 0.38 and 0.45 tons collected per person.

The *total amount of waste recycled has continued to increase*, from some 51,000 tons recycled in 1990 to nearly 158,000 tons in 2001. However, the number of tons of waste recycled per person has largely remained steady over much of the past decade. *By 1996, Dakota had reached the goal* for metropolitan area counties at 50% and was slightly exceeding the performance of the region as a whole. *Since 1997, however, the recycling rate has remained relatively steady* (between 48% and 50%). In 2001, the recycling rate fell from a rate of 50% in 2000, to approximately 48% of the total municipal solid waste generated in the County.

Currently, the recycling program in Dakota County consists primarily of the following four activities:

- Distribution of community funding and recycling containers to municipalities and rural areas for curbside collection;
- Implementation of environmental education campaigns to residents and businesses;
- Regulation of private waste hauling firms, and responsibility for reporting County progress towards achievement of environmental outcomes to the state and region; and
- Provision of leadership through the County's promotion of in-house recycling activities.

GENERAL PROGRAM FINDINGS AND RECOMMENDATIONS

While Dakota County has largely maintained the state mandated rate of 50% of mixed municipal solid waste recycled by weight, opportunities exist to improve ongoing collection of recycling data and collaborative partnerships with best practice jurisdictions, private industry, local communities and Solid Waste Management Coordinating Board member counties. Additionally, over the past decade, the County has dedicated a smaller overall proportion of resources to support local recycling programs -- targeting a growing number of households, businesses, organizations, and County staff -- than comparable SWMCB counties.

Specifically,

GENERAL PROGRAM FINDINGS

- **Recycling rates increased between 1990 and 1997.** A goal of the Environmental Management Department is protection and enhancement of the environment of Dakota County (*Dakota County Environmental Management Outcome Measurement Plan, 1998*). Recycling contributes to this goal by reducing waste that would otherwise be landfilled or require processing (e.g., by incineration), and by assuring that problem materials are properly managed. The increase in the recycling rate in Dakota County in the 1990s (from 26% in 1990 to 48% in 2001, with a high of 52% in 1997), and the growth in the number of tons recycled (from 51,000 tons in 1990 to 158,000 tons in 2001), indicates important movement towards achievement of this County goal.
- **Recycling and waste generation rates have remained steady since 1997.** In recent years, the apparent leveling of recycling rates (between 48% and 50% since 1997) and tonnage recycled per capita (between 0.43 tons and 0.45 tons collected per capita since 1997), coupled with the relatively steady rate of waste generated in Dakota County (from a low amount of 0.93 tons generated per capita in 1995 to 1.08 tons generated per capita in 2001), has resulted in a net increase in the tonnage of waste landfilled and an associated decline in landfill capacity.

While recycling should not, and cannot, be expected to shoulder the entire responsibility for adequate solid waste management (for example, federal, state, and local waste reduction initiatives have failed to curb the growth in the generation of waste), reversing the level recycling rates of the past five years can contribute significantly to continued landfill abatement in the metropolitan area. The Minnesota Office of Environmental Assistance noted in a recent policy report (2002) that 72% of the waste currently being landfilled or incinerated consists of materials that could be put to higher and better use through recycling or composting activities.

- **Best practice comparisons with local jurisdictions suggest that the best recycling rates nationwide range between 50% and 60%.** Although recycling programs across jurisdictions may not be strictly comparable, it seems clear that the potential for recycling programs to excel beyond this level of performance becomes increasingly more difficult with diminishing returns on improvement. Similarly, Dakota County should expect continued progress above this level of recycling at a much slower rate with greater investment of resources.
- **Environmental education is a primary Dakota County activity in support of recycling, although the impacts and overall effectiveness of these educational initiatives within the County and larger region are largely unknown.** Because public awareness is critical to stimulating interest and promoting support, a major goal of the Environmental Management Department is to "create an environmentally aware community" (*Dakota County Environmental Management Department Outcome Measurement Plan*, 1998). To this end, the Department dedicates a significant share of its resources to public education activities and participates with the Solid Waste Management Coordinating Board to develop and distribute environmental education materials to residents and businesses to encourage recycling. Regional focus currently centers on collaborating with existing organization to spread environmental messages (e.g., Community Power initiative).

Participation in recycling depends primarily upon individual motivation. In all sectors, individual initiative prompts participation in recycling activities. Further, recycling behavior learned and practiced in the home generally carries across to other sectors, including work. Assuming equal opportunity and access to education, resources, and technical assistance, the propensity of a resident or an organization to recycle depends largely upon individual interest and motivation. Therefore, a principal strategy has been -- and should continue to be -- increasing interest and motivating individual action.

- **Dakota County cooperates with metropolitan area counties through the Solid Waste Management Coordinating Board.** Dakota County has been an active participant in the Solid Waste Management Coordinating Board since its inception in 1990. The Solid Waste Management Coordinating Board is a joint powers board comprised of two county commissioners from Anoka, Carver, Dakota, Hennepin, Ramsey, and Washington Counties whose mission is to increase the efficiency and environmental effectiveness of the region's solid waste management system. Inter-county initiatives have convinced a number of counties that joint efforts can help to save money and improve service delivery (Minnesota Office of the Legislative Auditor: *Recycling and Waste Reduction*, January 2002). The Solid Waste Management Coordinating Board works with County staff to create annual work plans towards achieving regional and County environmental outcomes identified in the Regional/County Solid Waste Master Plan. Regular and constructive forums for exploring waste management strategies with state agencies, municipal recycling coordinators and rural representatives, and local waste management firms similarly provide additional opportunities for ongoing cooperation and program assessment.
- **Dakota County's ongoing collection and organization of data remains an important concern.** Counties are required to report recycling data to the Minnesota Office of

Environmental Assistance as part of the SCORE and LRDG funding programs. In addition, counties must report solid waste fee information to the Office of the State Auditor. Due to the inherent difficulties in collecting actual recycling tonnages, available data is most appropriately used for making broad comparisons of gross metropolitan area trends over time. The absence of reasonably sound, quantitative data is particularly problematic given that recycling program success is determined by mandated recycling rates. The County's Environmental Management Department is to compile and regularly evaluate recycling data by sector and material type, in order to identify components of the recycling system that may be improved. Specifically:

- ❖ Residential tonnages are estimated based upon "the percentage of each material type recorded in previously documented collections", and the proportion of accounts held in each local community (*Dakota County Ordinance No. 110*, Section 15.05 Recyclable Materials Reporting). This process of estimation relies upon private waste hauling firms to accurately assess the relative weight of collected materials, associate collected volumes of recyclables with specific geographic jurisdictions and accounts, and report these estimates to the County.
 - ❖ Commercial data is particularly difficult to collect and confirm. Private hauling firms provide commercial data based primarily upon actual hauler weights (e.g., a hauler with commercial accounts only) or percentage amounts (e.g., estimates of commercial versus residential accounts). The Dakota County business environment has changed dramatically through the 1990s, with the County adding over 2,400 new businesses over the decade. Accurate estimates of commercial and industrial recycling tonnages remain largely undocumented, however, since current estimates are based upon a 1991 survey of County businesses. (Current estimates of commercial recycling vary by a factor of three, or the difference between 16,000 tons and 50,000 tons.)
 - ❖ No information is available to determine the degree to which institutions in the County participate in recycling. Institutional data is currently subsumed within commercial recycling data (i.e., the commercial-industrial-institutional sector) in private hauler reports to the County. (To date, minimal County effort has been directed towards institutional recycling.)
 - ❖ Similarly, no systematic data is presently available to describe apparent trends in in-house recycling, though collection of these data would help to guide the County's programmatic activities in this area. Contracted waste haulers report in-house recycling tonnages as one component of commercial recycling data. In-house tonnages are not collected or maintained by County staff.
- **Market forces drive the collection and processing of recyclable materials.** The evolution of the solid waste management industry from public to greater private sector control is particularly evident in recycling programs, as local jurisdictions have increasingly delegated management and operation of collection and processing activities to private waste hauling firms. Improving competitive advantage, the dual effects of greater consolidation among private hauling firms in the marketplace, and vertical integration of haulers expanding waste management services, lead to greater reliance on fewer hauling companies.
 - **Public collection of recyclable materials increases direct public control over recycling collection and processing, and facilitates compilation of more accurate recycling data.** Additionally, public collection supports pay-as-you-throw pricing structures, which represent important opportunities for increasing the tonnage of materials recycled by offering households financial incentives for recycling over waste disposal. Exclusive contracting relationships for the

collection of recyclables may further include opportunities for greater education, monitoring, and enforcement of recycling practices by private waste hauling firms.

The experience of other cities and counties in the region suggests that stringent contracting for collection of waste and recyclable materials is one way to increase recycling rates and to provide access to more accurate and consistent trend data. Ramsey and Washington Counties recently completed a detailed analysis of public collection, in which they determined that public collection was the optimum solution to controlling municipal solid waste. Public collection has not been implemented at this time, however, due to uniform opposition by private waste haulers, reluctance by some residents to terminate existing household collection contracts, and agreement by private haulers to dedicate a minimum tonnage of waste for processing at the Ramsey/Washington County Resource Recovery Facility in Newport, Minnesota.

- Given that program performance has remained relatively steady, as the recycling program has matured, **Dakota County staffing and funding levels have shifted to support other solid waste management priorities over time.** State SCORE data reported for Dakota County suggests that County staffing levels for SCORE programs have fallen significantly over the past decade, particularly given Dakota County's population growth. Further, when population is held constant, the amount of SCORE funding expended per capita fell from a high of \$8.88 in 1991, at the initiation of the County's recycling program, to \$3.84 in 2001. In comparison with the six metropolitan area counties, Dakota County expends the least amount of funding per capita to support recycling and other SCORE-related activities, and commits a small number of County staff to support SCORE programs overall. Dakota County staffing for recycling decreased by more than 56% (from a high of 2.75 FTEs to 1.20 FTEs) between 1991 and 2001.
- **The gap between state and local financing for recycling programs continues to grow.** Since the establishment of the solid waste management tax in 1989, the Legislature has appropriated \$14 million for SCORE grants to counties. In real dollars, the state's commitment to recycling, as financed by the solid waste management tax, has declined over time. The current Legislature has reduced the contribution to SCORE by 10% as part of its budget balancing initiatives and proposes to reduce the statewide base amount for SCORE funding from \$14 million to \$5 million in future fiscal years.

The solid waste management tax generated about \$53.9 million of revenue in fiscal year 2001. Of this amount, \$47 million was appropriated for environmental activities in the Minnesota Pollution Control Agency and the Office of Environmental Assistance (including the \$14 million for SCORE grants to counties). However, \$7 million was not appropriated for environmental purposes and remained in the State's General Fund. The 2002 Legislature reduced the \$14 million for SCORE grants in the FY 2002-03 biennium by 10%, or \$1.4 million for purposes of balancing the state budget.

Dakota County received \$1.2 million in state funding (\$934,292 in SCORE and \$208,664 in LRDG funds) and other revenues to support recycling and other waste abatement activities in 2001, expending approximately \$1.7 million for SCORE-related programming during the same year. In 2002, Dakota County expects to receive \$940,284 from SCORE and \$199,650 from the Local Recycling Development Grant (LRDG).

- **Recycling exists within a larger solid waste management context characterized by a demonstrated lack of economic incentive for private industry and citizens to participate in recycling, a strong environmental ethic held by many individuals that occasionally runs counter to economic priorities, and governmental decision making that must be sensitive to both economics and ethics.** These three factors coincide to strongly impact recycling activity in Dakota County, the Solid Waste Management Coordinating

Board region, and the nation at large. The gradual shift from public to greater private decision-making highlights the changing role of local and state government, from regulation of the marketplace to leadership, education, provision of incentives, and market participation. These three factors provide a context for solid waste management that has helped to establish recycling as a successful waste abatement strategy, despite a lack of strong economic incentives for private waste management firms, and poses important considerations for future and continuous improvement. The County should be aware of the pay-as-you-throw pricing, and should further consider supporting policy initiatives that establish economic incentives for recycling and source reduction activities.

- **Critical internal processes, including strategic planning and measurement efforts, and external opportunities, including the impacts of changing technology, shape the direction of future recycling improvements in Dakota County.** Important internal processes include continued refinements to collection and maintenance of comparable data, systematic and strategic goal setting, promoting program partnerships, and encouraging program comparison for the benefit of ongoing evaluation. Based upon best practice comparisons with local jurisdictions (including the Cities of San Jose, California; Seattle, Washington; and Portland, Oregon), external opportunities include the impact of shifting technologies to support greater commingling of recyclables, household collection of additional material categories (including organics, construction and demolition debris, and electronics), and increasing emphasis on source reduction.

In particular, single-stream and two-stream recycling are prominent national trends that appear to increase the amount of recyclable materials collected, though the amount actually recycled may not reflect this increase. The effects of greater materials commingling have strong implications for the recycling rate, and require detailed analyses to determine the benefits and costs of single and multiple-stream collection systems. In Dakota County, the Hastings City Council recently approved implementation of single-stream collection of recyclable materials for all households in the community.

GENERAL PROGRAM RECOMMENDATIONS

- **The Environmental Management Department's Outcome Measurement Plan should be updated to reflect strategic opportunities and challenges, in keeping with the Master Plan.** The Environmental Management Department should re-evaluate its Outcome Measurement Plan, considering opportunities to combine regional goals and County activity measures, and regularly report progress to County Administration and the Board of Commissioners on the outcomes achieved, as outlined in the Plan. The opportunity to reconsider the Department's activities systematically within a demonstrated County and regional framework will be useful, particularly as the Metropolitan Solid Waste Management Policy Plan is updated in 2003. Specifically:
 - ❖ In a concerted effort to facilitate strategic, long range planning, the Dakota County Environmental Management Department Outcome Measurement Plan should be consistent with the Metropolitan Solid Waste Management Policy Plan (to be updated in 2003), and the Regional/Dakota County Solid Waste Master Plan (1998).
 - ❖ The current Outcome Measurement Plan lacks an outcome statement (i.e., the "if/then" statement), a key component for evaluation of progress towards expected program outcomes.
 - ❖ Significant gaps exist in the measurement data available for ongoing program administration. Data identified in the current Outcome Measurement Plan is not readily

available for management use. The updated plan should address outcomes for the major areas of County activity, including the Community Funding Program and targeted environmental education initiatives.

- **Dakota County should continue coordination efforts with the Solid Waste Management Coordinating Board, strengthening opportunities to collaborate with the waste management industry, local municipalities, and best practice partners.** Dakota County should continue to explore and take advantage of regional, private waste hauler, local community, and inter-county initiatives that have the potential to save money and improve service delivery through demonstrated partnerships.

Closer association with private waste management firms and local communities is conducive to improving the County's recycling efforts. Because solid waste management decisions are driven largely by private sector priorities, greater collaboration -- with local haulers, landfill and materials recovery facility operators -- offers the County a significant resource for promoting landfill abatement. Additionally, open and ongoing discussion with private sector waste management firms affords the County greater opportunity to close data gaps, initiate and implement targeted case studies, improve educational efforts to residents and businesses, and investigate new strategies for landfill abatement. Similarly, productive interaction between the Environmental Management Department and local municipalities will help to communicate best practice and improve program effectiveness at the local level.

- ❖ Dakota County should combine efforts with other Solid Waste Management Coordinating Board member counties to achieve economies of scale and meet common goals to the broadest extent feasible. Continued active participation in the SWMCB will contribute to this recommendation.
- ❖ Forging more productive partnership with the private waste management community strengthens the County's recycling efforts by inviting private sector participation and feedback regarding local recycling programs. Similarly, engaging local solid waste staff serves to identify gaps in service provision, and focus resources to address program priorities. Best practice comparisons with local jurisdictions nationwide present ongoing opportunities for program evaluation, particularly as the impacts of changing technology and other recycling developments become better known. Cooperation with private sector firms and local municipalities may include periodic roundtable discussions, tracking and confirming reported recycling tonnages, and exploring public collection of recyclables and other exclusive contracting arrangements.
- ❖ In cooperation with local municipalities, private waste hauling firms, the SWMCB region, and other County Department staff, Environmental Management Department staff should design and implement targeted case studies to gather additional information regarding specific recycling practices and residential and commercial preferences. Jurisdictions nationwide cite the importance of designing localized case studies for targeting particular materials and/or underrepresented audiences for the benefit of improved recycling.

Although many aspects of residential recycling are well-established, multifamily recycling, household purchasing preferences, the implications of single-stream recycling, collection of source-separated organic materials, and the effect of demographics on participation rates remain largely unknown. For example, the impact of changing demographics on local recycling programs is not well understood, though growing racial and ethnic diversity in the County may have strong implications for ongoing education of residents. Examining these, and other, related program issues, will assist in informing future program design and implementation.

- ❖ Because recycling exists within a larger hierarchy of integrated waste management that depends upon the collaboration of state, regional, local, and private stakeholders, Dakota County should continue to assess the relative effectiveness of specific County strategies and priorities within this network of stakeholder interests. Benchmarking against comparable jurisdictions may guide development and implementation of new strategies. Similarly, by capitalizing upon best practice partnerships that influence recycling policies within the region and nationwide, the County is better informed to improve existing performance. The County's communication and participation with industry representatives and professional organizations (e.g., the National Recycling Coalition) should be expanded to evaluate additional opportunities for recycling improvement, including evaluation of single-stream recycling, public collection of recyclables, and the effects of demographics on household participation in recycling.
- **Dakota County should report progress towards achievement of Master Plan goals and negotiated outcomes to the Board of Commissioners on a regular basis.** In the *Regional/County Solid Waste Master Plan* (1998), Dakota County identified several priorities, including the following:
 - ❖ The Master Plan specifically states that Dakota County will focus its efforts on food waste recycling to assist the region in maintaining the 50% recycling goal, and add a material to the list of collected materials when collection is shown to be technically and economically feasible. The Environmental Management Department should regularly report to County Administration and the Board of Commissioners on progress towards achieving these, and other identified outcomes, including interim steps being taken to accomplish them.
 - ❖ Although residential recycling volumes are consistently collected and reported annually to the region and the state, no County mechanism presently exists for periodic review of recycling data. Time series residential recycling data is not compiled and readily accessible for analysis within the County, or broadly available to share among other local jurisdictions.
- **The County should continue to improve the ongoing collection and maintenance of recycling data.** While comparative recycling data is inherently difficult to acquire, the County should consider dedicating more resources into systematic collection and regular maintenance of quantitative information, particularly in the following areas:
 - ❖ In order to strengthen overall reliability of hauler estimates, Environmental Management Department staff should periodically verify hauler reported volumes of recyclable materials collected against weight slips from materials recovery facilities, as authorized by *Dakota County Ordinance No. 110*. (The County, in conjunction with the region, should consider alternative reporting relationships to complement estimated tonnages of recyclable materials collected. Alternative reporting arrangements might include materials recovery and other processing facilities as sources of independent data to corroborate estimated recycling tonnages.)
 - ❖ Given that recycling data currently best identifies metropolitan area trends over time, and is less indicative of specific comparisons among local jurisdictions, the County and the region should investigate the possibility of summarizing and reporting recycling data on a regional basis. A single regional reporting framework serves to establish reasonable parameters and consistent definitions for hauler reported estimates, and streamlines metropolitan area reporting to state and regional agencies.

- ❖ Given continued business growth and the potential of commercial volumes to increase the recycling rate substantially, the Environmental Management Department should regularly assess commercial participation rates and recycling volumes collected. More comprehensive and frequent surveying of businesses in the County is necessary to determine recycling activity within the commercial-industrial-institutional sector. Similarly, a representative sample of large institutions should be surveyed on a regular basis in order to provide more information regarding recycling activity over time.
- ❖ With regards to Dakota County's in-house recycling efforts, the Environmental Management Department, in collaboration with the Dakota Environmental Review Team, County Administration, and associated Departments, should require contracted waste haulers to supply service volumes of in-house materials recycled on a regular basis. Complementary strategies that will further strengthen future analyses of in-house recycling and source reduction trends include regular waste composition studies, and staff and visitor waste disposal and recycling surveys.
- **The County should continue to examine relative educational program effectiveness, considering appropriate message, media, frequency, jurisdictional level, and target audiences.** If Dakota County continues to utilize education as a key strategy for supporting recycling rates, then the Environmental Management Department, with cooperation from the Office of Planning and SWMCB member counties, should undertake efforts to determine the relative effectiveness of educational campaigns. The Department should continue to conduct surveys and focus groups as one method for gauging the effectiveness of public awareness initiatives. Best practice comparisons with respect to several components of environmental educational programs should be examined, including the following educational factors:
 - ❖ Message -- What are the most important aspects of recycling and waste abatement to communicate to the public? What opportunities exist, as sponsored by the state, region, and other partners, to present environmental education messages? What existing messages may be adapted for use in campaigns in Dakota County and the region (e.g., should coordinate with industry contacts to assure public messages represent current recycling practices)?
 - ❖ Media -- What are the best methods for communicating information to individuals and organizations inundated with information?
 - ❖ Frequency -- How frequently should residents, businesses, and institutions receive messages related to recycling?
 - ❖ Jurisdictional level -- Currently, local, regional, and state agencies invest in educational activities for broadening awareness of waste management issues, including recycling. Which level is most effective at outlining recycling program guidelines, and encouraging greater participation? How might educational campaigns reflect messages from private industry, and local and regional governments?
 - ❖ Audience -- The Environmental Management Department should identify audiences currently underserved by existing recycling messages, in order to target awareness campaigns. Given changing demographic patterns, how should recycling messages be tailored to appropriately target households? Is there a significant need to translate educational materials to, and offer assistance in, other languages?

- In collaboration with local communities and the region, **Dakota County should promote local ordinances that support recycling.** The Environmental Management Department should work with local community representatives to promote model ordinances for increased recycling of excess materials and for building/site designs that encourage recycling. For example, haulers have indicated that some commercial establishments and multifamily dwellings do not include space for both garbage and recycling carts.
- **Dakota County's legislative platform should support strengthening state fiscal support of local recycling programs.** In real dollars, the State of Minnesota's commitment to recycling financed with the solid waste management tax has declined. The State of Minnesota has not dedicated the full proceeds of the solid waste management tax to environmental activities. Further, the current Legislature has reduced the contribution to SCORE by 10% as part of its budget balancing initiatives. The Dakota County legislative program should reflect the importance of a strengthened state commitment to support recycling initiatives and restore base funding for SCORE in future fiscal years.

RESIDENTIAL RECYCLING: FINDINGS AND RECOMMENDATIONS

Similar to many mature curbside recycling programs established in the early 1990s, residential recycling in Dakota County is relatively well established. County households receive educational materials on a regular basis and track estimated tonnages from licensed waste haulers. Nevertheless, with the support of best practice research, one improvement to residential recycling in the County includes exploring opportunities to increase participation by multifamily residences.

RESIDENTIAL RECYCLING FINDINGS

- **Residential, curbside recycling in Dakota County is well established and effective.** Overall, because curbside recycling programs have been in operation in many metropolitan communities nationwide since the early 1990s, residential recycling is largely well established. Similarly, following a decade of programmatic emphasis, residential recycling in the County is mature and effectively administered within municipalities and rural communities. The key elements of residential recycling programs include program consistency, stability, and household convenience.

Although residential recycling is voluntary in the County, private waste hauling firms must provide all households the opportunity to recycle, per Dakota County Ordinance No. 110. The County's partnership with local cities and townships through the Community Funding Program strongly supports curbside recycling in local communities. A majority of County recycling activities support residential recycling, including distributing funds to local communities to implement curbside recycling programs, developing educational materials disseminated primarily through newsletters and other mailings, and provision of recycling containers to new residents through community programs.

- **Many aspects of residential recycling in Dakota County compare favorably with best practice jurisdictions around the country,** including the existence of pay-as-you-throw variable pricing structures and collection of many material types. Best practice comparisons further indicate that continued improvements in residential recycling may yield fewer gains in the recycling rate over time, at greater program expense, due to diminishing returns. Additionally, although recycling is widely practiced by households in local communities throughout the County, region, and nation, it has been difficult to continue to improve waste management practices to develop a stronger focus on waste reduction and materials reuse (both more favorable strategies than recycling within the waste management hierarchy).

- **Including multifamily units in residential recycling collection requires dedicated effort to maintain participation rates.** Multifamily units are difficult residences to incorporate within local curbside recycling programs because they require targeted effort to improve participation rates and quality of recyclable materials collected. Particularly in more urbanized areas, multifamily residences comprise a significant percentage of total housing in some communities, and may represent a substantial number of households in the County potentially underserved by local recycling programs.

Best practice research suggest that improving multifamily recycling requires development of dedicated strategies, such as pilot programs implemented by Seattle, Washington (e.g., Friends of Recycling recruited volunteers in multifamily buildings to provide information and assistance to other building tenants regarding recycling practices). Within the City of St. Paul, Eureka Recycling dedicates staff specifically to tracking multifamily recycling trends and working with property managers and landlords to assure that residents have opportunities to recycle.

RESIDENTIAL RECYCLING RECOMMENDATIONS

- **The County should evaluate opportunities to improve multifamily residential recycling,** including opportunities for collaborative efforts with municipalities. Given the inherent difficulties of facilitating multifamily recycling, the Environmental Management Department should invest resources to encourage greater participation by multifamily households in curbside recycling. The Environmental Management Department should consider the applicability of educational and other programs geared principally towards promoting multifamily participation in local programs. The experience of best practice jurisdictions suggest practical comparisons for Dakota County and regional recycling programs to consider, including Seattle, Washington's Friends of Recycling multifamily program.
- **The County should examine and assess the work of jurisdictions in the region and nationwide to maintain and improve residential recycling rates on an ongoing basis.** While curbside recycling in Dakota County is well established, current efforts by comparable jurisdiction in the metropolitan area and across the nation may help to further identify factors that impact participation in residential recycling programs and household awareness of related waste management issues.

The Environmental Management Department should specifically consider recent analyses, such as those conducted by Eureka Recycling (to test recycling collection strategies in St. Paul), and the Cities of Burnsville and Eagan (to improve the collection, processing, and marketing of residential mixed paper). The current evaluation efforts of best practice jurisdictions suggest areas Dakota County and the Solid Waste Management Coordinating Board region should consider for developing local case studies and pilot projects, including specific collection methods, waste streams, and education strategies.

COMMERCIAL RECYCLING: FINDINGS AND RECOMMENDATIONS

Businesses, industries, and institutions generate the majority of mixed municipal solid waste, and additionally represent substantial potential for improving the recycling rate. Recycling programs in the metropolitan area and nationwide note that improvements in commercial recycling offer one of the most substantial strategies for mitigating waste disposal and lengthening the life of area landfills. Little data is available, however, to rigorously assess the degree to which additional recycling within the commercial sector will potentially increase recycling rates and minimize the amount of waste disposed.

Commercial recycling nevertheless represents a new area for local program emphasis, particularly given the lack of economic incentives in place to support commercial recycling. Dakota County currently directs few resources towards supporting commercial recycling. Recommendations for improvement include gathering more updated data regarding business participation in recycling programs, and developing more targeted education and assistance activities to businesses in the County.

In addition:

COMMERCIAL RECYCLING FINDINGS

- **The commercial sector faces financial disincentives by recycling over waste disposal.** Due largely to the low cost of landfilling waste, the costs for businesses to recycle frequently outweigh any demonstrated economic benefits, which suggests that incentive programs may have to offer substantial benefits in order to be meaningful to companies to participate. Disincentives are particularly formidable for smaller firms over larger firms, who are often better able to leverage economies of scale and publicity as added benefits to recycling. While many larger firms participate in recycling and have established in-house recycling programs (e.g., West Publishing), it is considerably more difficult for smaller companies to allocate resources to support recycling activities, particularly given that recycling frequently implies equal or larger costs than waste disposal. Economies of scale work to the benefit of larger businesses, which are better able to take advantage of waste and recycling collection efficiencies.
- **At present, there exists minimal program focus on commercial recycling in Dakota County.** Hennepin and Anoka Counties provide examples of counties statewide that are proactive in working with businesses to document and improve commercial and industrial recycling efforts. Cities including San Jose, California, and Seattle, Washington provide economic incentives to encourage participation in commercial recycling. Additionally, Seattle's Small Business Curbside Recycling Program allows businesses that generate a small amount of waste (90 gallons or less) to participate in city-sponsored curbside or alley recycling service at no charge to the firm.

Because commercial recycling is largely dependent on its cost to businesses and the relative value of materials collected, Dakota County currently has only a limited role in increasing commercial recycling rates directly. There exists, however, potential for some businesses in the County to recycle more:

- ❖ Some businesses do not recycle because they do not realize that recycling may prove economical for them. The County should maintain a stronger outreach and educational presence for the benefit of the commercial sector.
- ❖ A number of obstacles exist that hamper recycling by businesses, including city ordinances requiring screening of containers, and one-time expenses for recycling equipment (i.e., baler) that may not demonstrate a timely return on investment. The County should explore providing direct financial assistance in addressing and alleviating these and other barriers to commercial recycling.
- ❖ Dakota County should explore the possibility of enacting a selective mandatory or volunteer program that requires all generators of certain quantities of cost-effective materials (e.g., corrugated cardboard, office paper) participate in recycling.
- ❖ According to Seattle, Washington, including small businesses with residences for the purposes of solid waste management can shift commercial recycling from operating as a cost burden to a cost savings. This shift would extend pay-as-you-throw pricing for

waste collection to small businesses and consequently provide them with an economic incentive to recycle. The County should explore the effect of extending residential curbside recycling collection to small businesses.

- **Current estimates regarding the amount of materials recycled by the commercial-industrial-institutional sector in Dakota County is lacking.** Although businesses contribute an estimated majority (73%) of the volume of waste recycled in Dakota County, the metropolitan area, and the state as a whole, Dakota County recycling programs have focused most heavily on encouraging residential recycling. Between 1990 and 2000, there has been a 36% increase in the number of businesses located in Dakota County, or a growth of about 2,400 businesses. This growth has exceeded the rate of business growth for the metropolitan region as a whole, with the proportion of businesses located in Dakota County increasing from approximately 9.0% of those in the region in 1990 to 11.2% in 2000.

Recycling data indicates that commercial businesses generate more than one-half of the recycling rate by weight. However, no data describes the potential amount of waste that is not being captured. County inspectors have noted the existence of more recyclable materials from businesses present at landfill inspections, suggesting potentially untapped capacity for additional commercial recycling.

COMMERCIAL RECYCLING RECOMMENDATIONS

- **The County should dedicate greater recycling program emphasis towards the commercial and industrial sectors, providing resources to support commercial sector outreach and technical assistance.** Commercial recycling offers additional capacity for improving the County's recycling rate, though results are inherently difficult to credit to particular levels of programmatic effort. The Environmental Management Department, in conjunction with the Office of Planning and the SWMCB region, should create a more targeted commercial-industrial recycling program, based upon information exchange and dedicated technical assistance.

Dakota County should consider working with specific expertise to develop and implement a targeted commercial recycling campaign. Minnesota Waste Wise maintains a unique mission to support commercial recycling and waste reduction practices. Targeted commercial recycling programming will further support achievement of the County's commitment to "implement a phased business recognition program" (*Regional/Dakota County Solid Waste Management Plan, 1998 to 2017*).

- **Dakota County should regularly update its business survey in order to improve current estimates of commercial recycling in the County,** and collaborate with the Solid Waste Management Coordinating Board region to establish practical commercial data standards. Given that commercial recycling data is inherently problematic, the Environmental Management Department should establish solid estimates of commercial recycling activity each year in order to more effectively track the potential of this sector to influence countywide recycling rates. The Department should focus on the largest firms located in the County (employing 500 individuals or more), and collect haulers' estimates of total waste generation and commercial service volumes. Dakota County, in conjunction with the SWMCB member counties and the Minnesota Office of Environmental Assistance, should review commercial estimation practices, and formulate applicable standards for estimation across the region.
- **Dakota County should study and adapt best practice comparisons for improved commercial recycling** from Anoka, Hennepin, Ramsey, other counties and municipalities. The growth in businesses and the best practice of other counties provide both a reason and an

opportunity for Dakota County to emphasize and adapt best commercial-industrial recycling practices to continue to increase the tonnage of material recycled in Dakota County. Seattle, Washington's Small Business Curbside Recycling Program represents one practice that potentially alleviates a disincentive for smaller businesses to participate in local recycling. With cooperation from the Dakota County Office of Planning, the Office of Planning, Evaluation, and Development, and the SWMCB, best practice research will further the achievement of identified County outcomes.

- **The County, with assistance from the state, region, and local communities, should identify and address obstacles to commercial recycling,** including but not limited to:
 - ❖ The impact of grants, loans, and other financial incentives to encourage commercial recycling,
 - ❖ Identification of local ordinances and other statutes that potentially hamper recycling activity among businesses in Dakota County, and
 - ❖ The practicality and implications of including small businesses within current residential curbside collection programs.

INSTITUTIONAL RECYCLING: FINDINGS AND RECOMMENDATIONS

Although Dakota County dedicates few resources specifically towards supporting recycling within institutions in the County, school districts, colleges, hospital clinics, houses of worship, and other organizations located in the County are committed to internal waste abatement practices. The County's role in providing recycling support to institutions is limited; nevertheless, the County should direct educational materials and technical assistance as needed to interested organizations.

INSTITUTIONAL RECYCLING FINDINGS

- **Dakota County directs minimal program resources towards supporting institutional recycling in the County.** Dakota County encompasses nine school districts, all of which are located at least partly within the County, and numerous nonprofit organizations, medical clinics, and houses of worship. The state mandates that all institutional waste must be delivered to processing facilities. For the purposes of waste and recyclables collection, however, these institutions are considered within the commercial-industrial-institutional sector, and little County emphasis is specifically directed towards improving recycling participation and tonnages among institutions. While local government is not responsible for ensuring institutional recycling, other metropolitan area counties (e.g., Anoka, Hennepin, and Ramsey Counties) note limited outreach to large institutions as one component of their commercial sector technical assistance programs.

Minnesota Waste Wise is currently working with Independent School District 196 on a waste reduction and recycling effort. Because the district is large (33 buildings housing 28,000 students), greater economic incentives to recycle exist. Minnesota Waste Wise is providing technical skills and economic analysis to justify waste abatement practices, while the County is exploring future applications of the analysis in other school districts in the County. While significant opportunities exist to support and improve recycling within Dakota County schools, few opportunities exist to incorporate recycling and source reduction messages into current school curricula, due to tight class schedules.

- **Many large institutions in Dakota County are committed to recycling and have established internal recycling programs.** Based upon the motivation of individual staff,

many organizations are interested in recycling and commit resources to implement recycling programs. Ongoing education and technical assistance, however, would help to build awareness and support recycling efforts within this sector.

INSTITUTIONAL RECYCLING RECOMMENDATIONS

- **While the County's role in encouraging institutional recycling is notably small, institutions should be targeted by existing educational and technical assistance programs.** Institutions offer one opportunity for improving recycling rates. The Environmental Management Department should provide education and technical assistance as needed to encourage waste reduction and recycling practices, and to further develop public awareness of environmental and associated waste management issues.

In addition to measures of recycling activity, a major goal of the Environmental Management Department is to "create an environmentally aware community" (*Environmental Management Department Outcome Measurement Plan*, 1998). The Department contributes a significant share of its resources to public education. While the Department does address residents and businesses through periodic educational mailings, public awareness campaigns do not specifically target schools and other institutions in the County.

- **Best practice comparisons suggest several opportunities for Dakota County to pursue special recycling initiatives with institutions.** Metropolitan area counties, including Hennepin and Anoka Counties, largely address institutions as one component of the commercial sector, providing technical assistance and education to interested organizations as requested. The City of Seattle, Washington sponsors a Medical Industry Waste Prevention Roundtable to exchange ideas regarding waste reduction and recycling for those involved in medical institutions. Seattle additionally offers special technical assistance to large event venues, campuses, and other institutions to help improve environmental performance.

The Dakota County Environmental Management Department -- in conjunction with the Dakota Environmental Review Team, Minnesota Office of Environmental Assistance, SWMCB counties, and local municipalities -- should consider convening industry roundtables to share recycling and waste reduction practices. Dakota County should additionally promote sound waste management strategies and practices at all local events, civic venues, and other large public gatherings taking place within the County.

IN-HOUSE RECYCLING: FINDINGS AND RECOMMENDATIONS

While County policies have been established to guide recycling and related environmental activities in Dakota County, lack of systematic administration and ongoing support for the in-house program has resulted in inconsistent observance of demonstrated priorities. In-house recycling in Dakota County requires centralized management and program promotion, with assistance from County Departments, the cross-County Dakota Environmental Review Team, and individual County managers and staff.

IN-HOUSE RECYCLING FINDINGS

- The County has established an internal recycling policy (County Policy 4301 In-House Waste Reduction and Recycling, 1992) and related in-house program that produces significant benefits. **There is, however, inconsistent compliance with County policy and irregular participation in recycling by County staff, depending largely upon individual motivation.** The County administers a complementary environmentally responsible

procurement program (County Policy County Policy 2742 Procurement of Recycled Products) with limited success. County policy requires Departments and employees to recycle, copy documents double-sided, establish central filing systems, reuse file folders, use routing slips and bulletin boards to exchange information, remove individual names from mailing lists, use reusable cups and recyclable containers, and create documents using soy-based ink.

The Master Plan requires Dakota County to “increase recycling efforts and adjust purchasing decisions to reduce the amount of municipal solid waste generated in its county-operated buildings by 5% by 2003” (Regional/County Solid Waste Master Plan, 1998). Specifically, as part of the Master Plan, Dakota County identified the following commitments:

- ❖ Determine the feasibility of implementing a food waste recycling or reduction program at County facilities,
 - ❖ Evaluate and, where feasible, incorporate aspects from the Environmentally Responsible Purchasing Guide into the decision making process and contract specifications for purchasing products for County use,
 - ❖ Promote the use of eco-printing techniques and practices by all County Divisions/Departments through the existing County Communications Liaison Committee; the Environmental Management Department staff will provide assistance to other County Departments,
 - ❖ Conduct one waste sort in one County building each year to determine the composition of the waste materials being discarded, and work with the employees in the building to recycle and reduce appropriate materials, and
 - ❖ Work to purchase products with higher post consumer content (e.g., copy and printer paper, office letterhead).
- **To build consistency of practice among staff, in-house recycling requires systematic attention and continuing commitment.** Dakota County’s in-house recycling program will benefit from continuing attention from managers and staff at all levels of the organization, and coordination across Departments and facilities.

Presently, the Environmental Management Department, in collaboration with other County Departments, promotes in-house recycling and waste abatement -- developing the Eco-10 Challenge, conducting periodic waste and recycling sorts, and facilitating the Dakota Environmental Review Team (DERT) to support environmental outcomes. The Departmental Services Unit of the Operations Management Department supports environmentally preferable purchasing and related initiatives (e.g., central duplication and mailing). An environmentally friendly, sustainable building initiative has been implemented in the County. However, emphasis on these efforts has proven difficult to sustain over time. For example, DERT currently meets only once or twice each year to exchange information and to discuss improvements to County processes. Many County staff do not recognize that there are options on printers linked to their computers to prepare two-sided documents. Support from County managers at every level of the organization and a renewed commitment of staff can and should reinforce County in-house recycling results. With leadership at all levels within the County and individual participation in recycling and environmental purchasing, consistency of practice among staff in pursuing recycling and waste abatement goals can be attained within County Departments and Divisions.

- **Stringent contracts for collection of recyclable materials are one effective method for improving management of in-house recycling programs.** The experience of other counties in the region suggests that stringent contracting for collection of waste and recyclable materials is one way to ensure access to more accurate and consistent trend data for in-house volumes. Based upon the best practice of comparable counties, other strategies, including

periodic facility waste composition studies and surveys, may similarly be effective in providing regular estimates of volumes recycled and disposed of within County facilities and buildings.

IN-HOUSE RECYCLING RECOMMENDATIONS

- **Dakota County should rededicate efforts towards consistent and regular promotion of in-house recycling and waste abatement activities, to promote broad awareness and participation among County staff.** Dakota County government leverages a direct impact on recycling through efforts in County buildings and facilities. With involvement and leadership at all levels of the organization, individual participation and consistency in maintaining recycling practices and waste abatement can be attained.

Renewed efforts within the organization should include consideration of:

- ❖ Clear responsibility and expectations for the implementation of internal recycling and waste abatement efforts,
- ❖ Standards for building maintenance that support the recycling of wastes produced in County facilities,
- ❖ Ongoing education for County staff and visitors, presented in a variety of formats (e.g., posted signage, presentations to new employees during scheduled orientations, etc.),
- ❖ Assistance and technical support targeted to Departments and staff regarding opportunities to purchase environmentally preferable office supplies, and
- ❖ The experience of comparable best practice jurisdictions and organizations for adaptation to Dakota County's in-house efforts.

CONCLUSIONS

Dakota County is largely achieving the state-mandated recycling goal of 50% of all municipal solid waste generated. In keeping with the Solid Waste Management Coordinating Board area, Dakota County recycling rates have remained steady between 48% and 50% since achieving its high recycling rate of 52% in 1997. In the *Dakota County/Regional Solid Waste Master Plan*, Dakota County committed to striving to maintain recycling rates at 1997 levels (52%). Additionally, residential recycling in Dakota County compares favorably with programs established in best practice jurisdictions. While opportunities for recycling improvement exist, the cost of incremental improvements must be considered.

As this Recycling Evaluation demonstrates, opportunities exist to expand current activities, in each of the four sectors studied. Multifamily residences represent one group that may be underserved by existing curbside collection services. Dakota County currently places minimal program emphasis on commercial-industrial and institutional recycling (including schools and colleges, medical clinics, and churches), both of which afford significant opportunities for increasing the tonnage of recycled materials collected. Finally, in the area of in-house recycling, the County should capitalize on its leadership position to more strongly and systematically reinforce recycling messages among staff and visitors to County buildings and facilities. Future actions to strengthen the County's recycling program depend upon an assessment of program stability, identification of primary areas of emphasis to effectively maintain or increase recycling rates, and determination of the degree to which the current level of recycling satisfies Dakota County's long-term goals of maintaining a healthy and sustainable environment.